

Climate Change California Forest Impacts and Responses

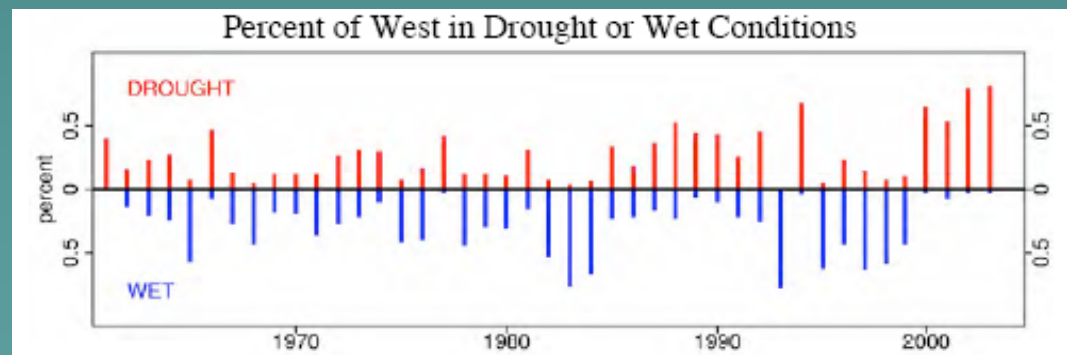
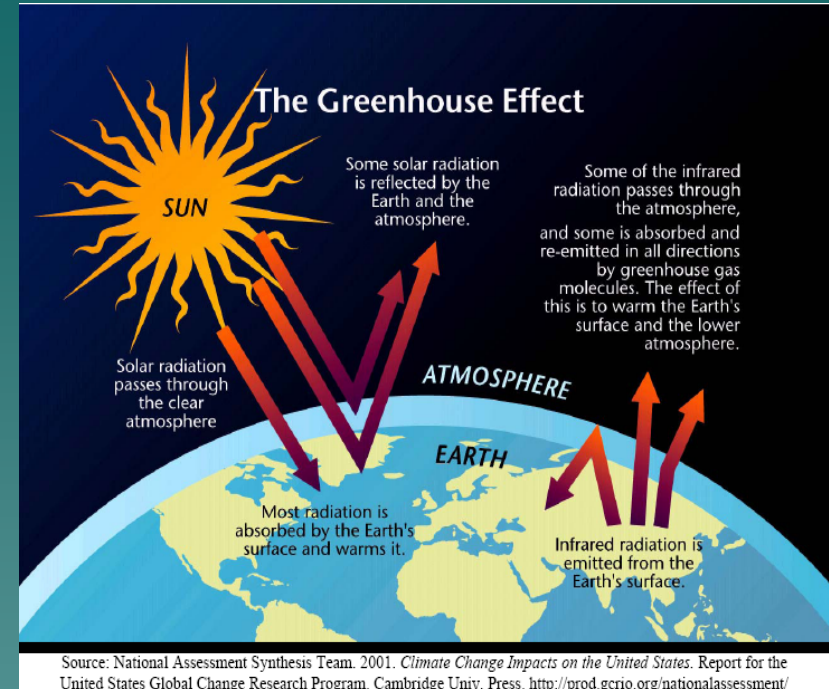
Grey Panthers
Sacramento

January 13, 2009

Doug Wickizer, Chief Environmental Protection
and Regulations; Cal Fire

Climate Change Cycle

- ◆ Scientific Consensus is that Climate Change is Occurring.
- ◆ The Rate of Change and Regional effects are still under scientific discussion
- ◆ California is experiencing changes in weather patterns.
- ◆ Is that Climate Change or natural shifts in weather cycles?

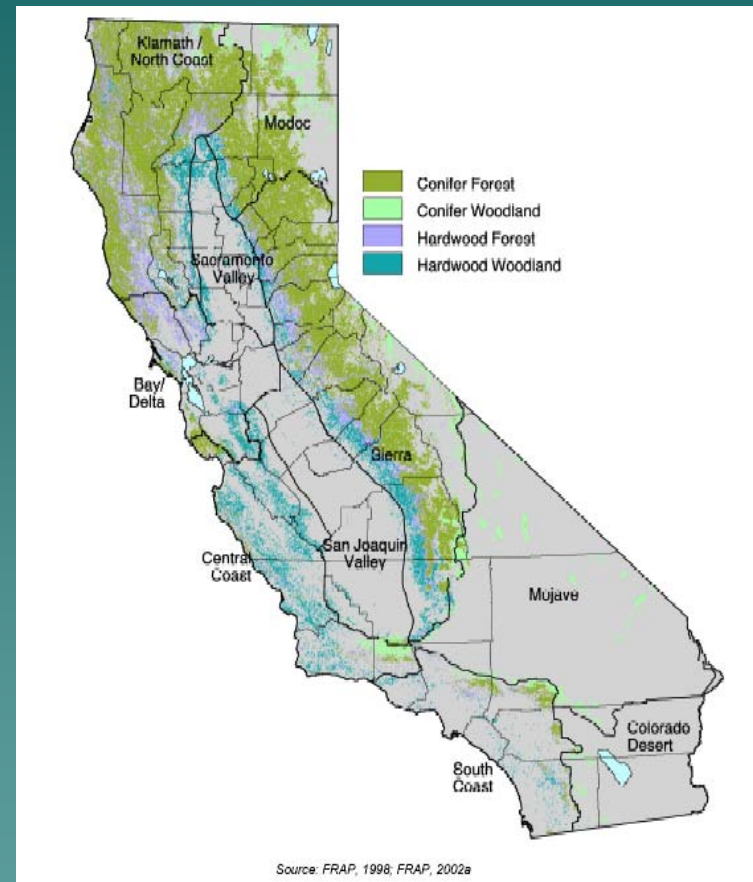


Westerling, Climate Change and Wildfire; 2006

California Forest Land Base

- **California has over 31 million acres of Forest land**

<http://frap.cdf.ca.gov/>



Area of forest land by CWHR type and ownership (million acres)

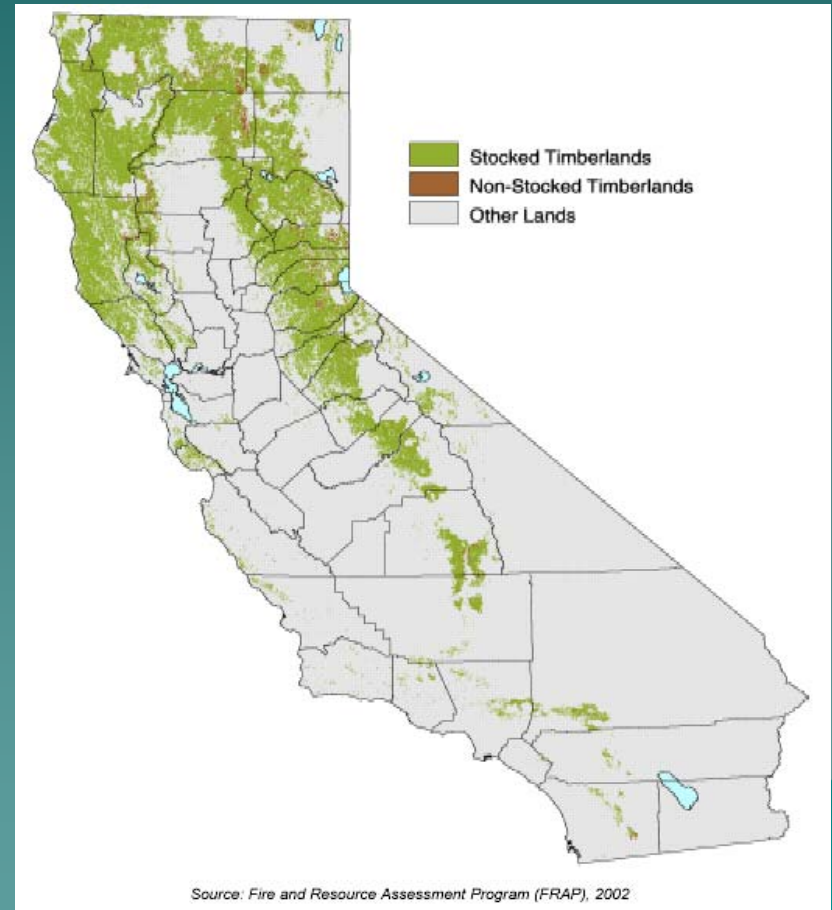
	<u>Private</u>	<u>USFS</u>	<u>BLM</u>	<u>NPS</u>	<u>Other public</u>	<u>Total</u>
TOTAL	14.2	13.3	1.3	1.5	1.1	31.3

California Forest Resources Land Base

- Over 50% of California's forests (16.6 mm acres) are classified as "Timberland"

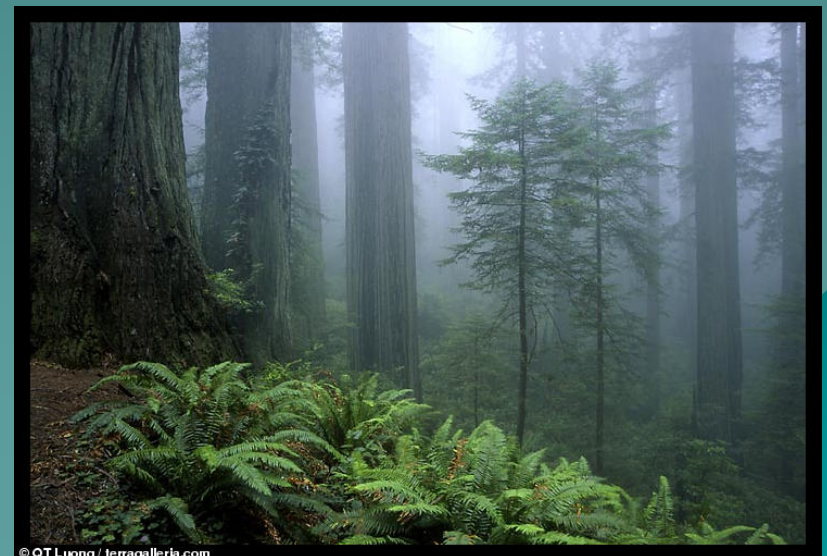
Resource Area	Total private	Forest industry	Other private	Total public	USFS	Other public	Total
North Coast	2,738	1,402	1,336	675	535	140	3,413
North Interior	2,276	1,717	559	3,669	3,519	150	5,945
Sacramento	1,663	911	752	2,635	2,556	79	4,298
San Joaquin/Southern	515	146	369	2,173	2,120	53	2,688
Central Coast	245	22	223	62	55	7	307
California	7,437	4,198	3,239	9,214	8,785	429	16,651

Source: compiled by FRAP from Waddell and Bassett, 1996, 1997



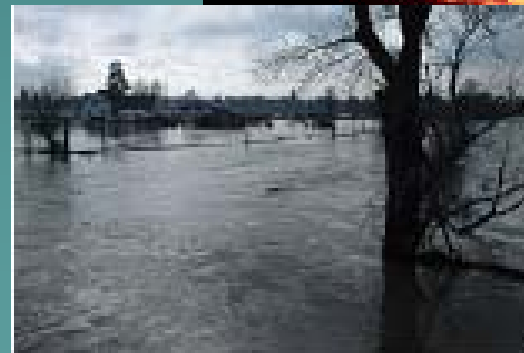
Some Predicted Impacts by Global Warming of Most Concern to California Include:

- ◆ Reduced summer runoff of fresh water
- ◆ Increased winter rains intensify flooding and landslides
- ◆ Reduced coastal fog
- ◆ Longer, hotter summers
- ◆ Invasive species out compete natives for critical resources
- ◆ Climate changes increase the number of endangered species
- ◆ Pest species become more prominent or destructive
- ◆ Longer dry periods will decrease forest fuel moisture (more large fires)
- ◆ Fisheries negatively impacted
- ◆ Cycles of beach and cliff erosion from wave damage



Practical Impacts on California Forest Lands

- ◆ Increased Forest Mortality
- ◆ Increased Fire Hazard
- ◆ Increased High Intensity Storms/Flooding
- ◆ Shifting of Forest Ecosystems
- ◆ Provides incentives to maintain, working forest and not convert forest lands to other uses



Challenges to California's Forests

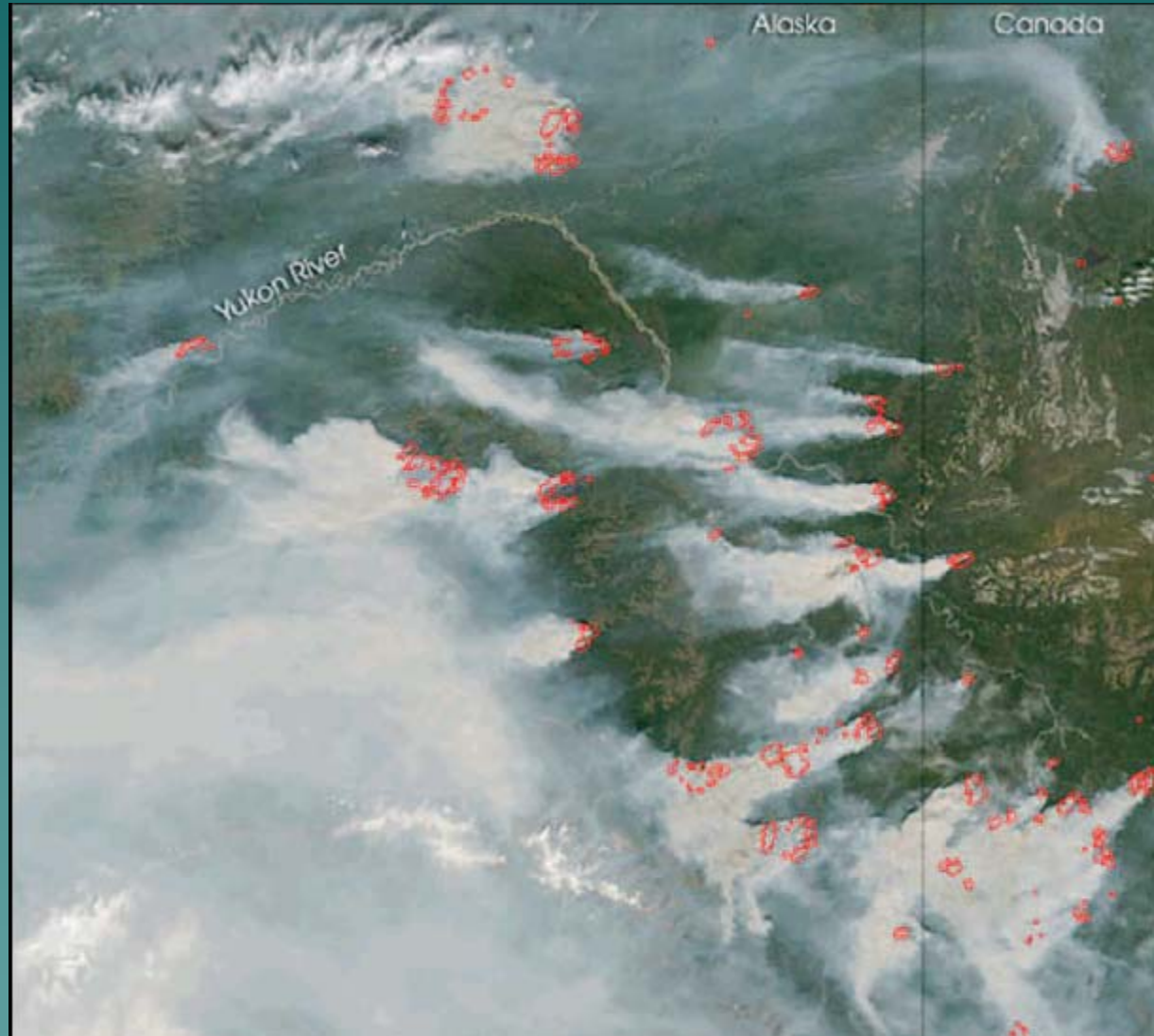
- ◆ Hazardous fuel accumulations
- ◆ Forest health risks - insect and diseases
- ◆ Limited implementation capacity on federal lands
- ◆ Weak accounting systems for carbon in timber (now voluntary)
- ◆ Maintenance of working forests is financially challenging
- ◆ Urban forests are not expanding
- ◆ Public understanding and support for forest management's role in storing carbon and producing bio-energy is weak
- ◆ More research is needed to quantify and promote best opportunities for forest management' to provide climate benefits
- ◆ Forests will need to attract more investment capital to achieve potential



The Big Risk: lots of carbon up in smoke

Signs of Impacts:

- Five Year avg. of fire acres burned in California rose from 250,000 acres per year to 500,000 acres burned
- There is a risk that 25% of the timberland will be (>25% mortality) impacted by insects and disease in the next 15 years.



What is Being Done ?

◆ Climate Change Actions --

– Current Legislation Implementation:

- ◆ AB 32 (2006) – Implementation under way
- ◆ Cap and Trade (Market Driven-Including Offsets)
- ◆ Emission Regulations on Power, Cement, Refineries, etc. but not the Forest Sector
- ◆ Scoping Plan Adopted by ARB (Addresses Mitigation)

– Administrative Actions:

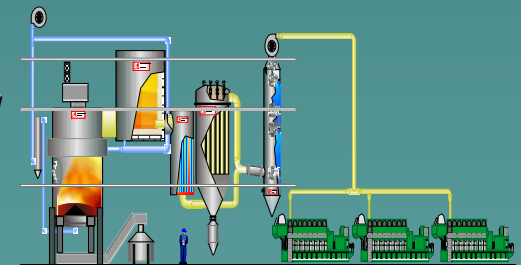
- ◆ California Climate Action Team 2006
- ◆ Subgroups established to deal with 12 sectors including forestry.
- ◆ Subgroups have efforts in climate change mitigation research and adaptation.

– California Climate Action Registry: The Market/mitigation

- ◆ Organized 2002 – Adopted General Reporting Protocols
- ◆ 2005 – Adopted Forestry Protocols
- ◆ 2009 – Amended Forest Protocols to be Adopted
- ◆ Three Forest Projects – 1) Conservation, 2) Afforestation, and 3) Forest Conservation Management

Actions to Meet the Challenges

- ◆ Public Education and Technical Assistance
 - Public and Private collaboration
 - Technical assistance to private landowners
- ◆ Potential Economic Opportunities
 - Emission trading – Cap and Trade markets
 - Carbon accounting institution (AB 32) that includes forest management and forest products
 - Public Fund Investments in green Infrastructure
 - CalPers/CalStrs investing \$500 million in green projects, Wildlife Conservation Board
 - Public Investment in climate-friendly buildings, fuels, and products.
 - Establishment of Renewable Energy Credits
 - Develop distributed generation
 - Research, Development, and Demonstration Efforts
 - DOE/CEC continue to fund technology research
 - Publicly fund demonstration and pilot projects;



California's Forests to Support Climate Action Team Goals

Next Steps:

- ◆ Develop Partnerships with all players – landowners, managers, researchers, beneficiaries (consumers and residents)
- ◆ Develop market-based solutions to address supply and product pricing for carbon and bio-energy components of forest products and forest management
- ◆ Invest in critical research and public awareness programs
- ◆ Work with agency stakeholders to streamline permitting processes
- ◆ Define Best Management Practices to increase carbon sequestration
- ◆ Continue Coordination of Climate Action Team and Bio-Energy Interagency Working Groups
- ◆ Implement Climate Action Team action items
- ◆ Ensure that California Climate Action Registry Forestry Protocols work well

If we do what we have always done, we will only stay where we are !

